

LOCKHEED AIRCRAFT CORP.		ENGINEERING STUDY <input checked="" type="checkbox"/>		LAC 47-2						
DATE 4-11-60		AFFECTS: WSPO <input type="checkbox"/>		PROJECT <input checked="" type="checkbox"/> -/						
NAME OF MAJOR COMPONENT OXYGEN SYSTEM		PART OR LOWEST SUBASSEMBLY SEAT PACK		PART NO. & MODEL OR TYPE Q-207						
TITLE OF PROPOSAL : DUAL OXYGEN SEAT PACK INSTALLATION										
NATURE OF PROPOSAL : SEE PAGE 2										
REASON FOR PROPOSAL : 1. To incorporate additional in-flight safety provisions in the oxygen system by installing a seat pack with two oxygen regulators and a valving arrangement permitting the pilot optional use of both or either one of the pressure regulators. 2. To incorporate an improved disconnect coupling with automatic green apple actuation. 3. To incorporate requested thigh straps, quick harness and mask/suit hose disconnect. 4. To incorporate requested fiberglass survival gear container.										
ES		ESTIMATED COST AND TIME INVOLVED : ADDITIONAL FUNDING REQUIRED : See Pages 4 & 5								
CP		ESTIMATED COST FOR KITS OR PARTS : ADDITIONAL FUNDING REQUIRED : See Pages 4 & 5								
ITEMS AFFECTED BY PROPOSAL :										
SAFETY <input checked="" type="checkbox"/>	MISSION EFFEC- TIVENESS <input checked="" type="checkbox"/>	PERFORM- ANCE <input type="checkbox"/>	OPERATING PROCEDURE <input checked="" type="checkbox"/>	INTER- CHANGE- ABILITY <input checked="" type="checkbox"/>	WEIGHT OR WEIGHT & BALANCE <input type="checkbox"/>	TOOLS & SUPPORT EQUIPMENT <input type="checkbox"/>	MAINTENANCE PROCEDURE <input checked="" type="checkbox"/>	SERVICE LIFE <input type="checkbox"/>	FLIGHT MANUAL <input checked="" type="checkbox"/>	MAINTENANCE MANUAL <input checked="" type="checkbox"/>
EST. MAN/HRS. REQ'D. TO ACCOMPLISH CHANGE IN FIELD										
SOURCE OF PARTS FOR KIT LAC			AVAILABILITY _____ WEEKS AFTER APPROVAL See Page 5							
DISPOSITION OF SPARES AFFECTED See Page 5 - Section "C"										
INITIATED BY : LAC			APPROVED : WSPO- PROJECT							

NATURE OF PROPOSAL:

1. Replace the present Q-207 Seat Pack with a production Dual Oxygen seat pack which is identified as Q-270.
2. This Q-270 pack has two new type oxygen disconnect couplings. The first incorporating automatic emergency oxygen supply actuation on ejection. The second operated by kit deployment handle, will release mask and suit hoses from pack.
3. No change is required to the aircraft oxygen system other than the location of the oxygen disconnects.
4. Change Proposal LAC-69 will result in a new electrical disconnect being incorporated which separates on ejection, to eliminate pull on face mask.
5. Relocation of the shelf on the seat is required to accommodate this pack and re-routing of the lap belt initiator hose is desirable.
6. Issue a Service Bulletin and fabricate appropriate kits for Item 5 above.
7. The first production pack will be test at the E.A.F.B. altitude chamber.
8. For detail description of the Q-270 system see pages 2, 3, 4 and attached drawing.
9. Additional production Q-270 packs to be furnished on Depot Purchase Requests. To replace all present Q-207 packs will require approximately 35 Q-270 packs.

DUAL OXYGEN SEAT PACK

1. The drawing Q-216 (submitted with LAC 47-1) shows the dual regulator seat pack presently used by LAC pilots. To date, approximately 1700 flight hours have been accumulated on three packs with no in-flight difficulties encountered.
2. Although the Q-270 pack is not identical to the Q-216, its basic principles are the same, the changes being refinement of mechanical design, location of components and method of packaging to facilitate maintenance.

Description of Pack

Refer to Oxygen System Schematic shown in Fig. I.

Reduced pressure oxygen is directed from the airplane system through the quick disconnect to a selector valve. This valve is controlled by a lever which is located on the left forward side of the pack. (See enclosed drawing.) The valve may be positioned to allow operation through regulator #1, regulator #2 or through both regulators simultaneously. The selector

Description of Pack (Cont.)

valve is so arranged that oxygen is never shut off to either regulator during the time the valve is shifted from one position to another.

A production dual regulator assembly is in process at Firewel. This assembly consists of two regulators assembled to a flapper type outlet valve. The total assembly is at Firewel to produce the best possible mating of regulators and valve.

The outlets from both regulators are connected to the outlet valve. This valve consists of two sections; one for mask flow and the other for suit flow. Each section of the valve contains a double flapper check valve so arranged that when only one regulator is operating, the outlets from the other regulator are closed. Thus if the inoperable regulator has a leak, the outlet flow from the operating regulator will not be discharged through the leak. The double flappers are of such design that they cannot check against both inlets at the same time, thereby allowing direct connection between the mask/suit and at least one regulator so that the mask/suit will be adequately vented in the event of rapid decompression. Mask and suit outlets from the valve are provided and are connected by short hoses to the appropriate inlets of the pack to hose disconnect.

Two press-to-test buttons are provided on the left side just aft of the selector valve control handle; one for each regulator and when used in conjunction with the selector valve, the operating condition of each regulator may be determined.

An emergency source of 96 cu. in. oxygen is supplied which is 1.7 times that in the system now in use in the Q-207 packs. This oxygen is routed through the selector valve and may be delivered to either or both regulators, depending upon the pilot's requirements.

Quick Disconnects

The Q-270 Oxygen System will incorporate two disconnects. The first will disconnect the pack from the ship's oxygen supply and at the same time automatically activate the emergency oxygen supply in the pack. The second disconnect will free the mask and suit hoses from the pack as the first operation in the sequence initiated by movement of the operating handle controlling deployment of the kit.

Packaging

A fiberglass container consisting of two halves will be provided to house the oxygen system and the survival gear container. The upper half will contain the complete oxygen installation, including controls and disconnect. The present contour top will be maintained except that extensions will

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GFE List

*(Revised 4-18-60)

GFE LIST

The parts listed below should be part of the Q-207 Seat Packs that are returned for disassembly:

F 1263-3	Charging Valve	1 Req.
F 9025-7	Tester	1 Req.
F 2050-1	Reducer Valve	1 Req.
F 46400-13	Relief Valve	1 Req.
Type L-2	Gage	1 Req.
* F 2400-6	Regulator	1 Req.

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GFE List

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**(Revised 4-25-60)

GFE LIST

The parts listed below should be part of the Q-207 Seat Packs that are returned for disassembly:

F 1263-3	Charging Valve	1 Req.
F 9025-7	Tester	1 Req.
F 2050-1	Reducer Valve	1 Req.
F 46400-13	Relief Valve	1 Req.
Type L-2	Gage	1 Req.
* F 2400-6	Regulator	1 Req.
** F 2400-6	Regulator	2 Req.

The additional regulator to be GFE from Customer's stock.

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